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ANNUAL REPORT

of the

SEASON'S INSECT CONTROL OPERATIONS

1933

Lassen Volcanic
National Park

ANNUAL REPORT
of the
SEASON'S OPERATIONS, INSECT CONTROL

November, 1933 — Lassen Volcanic Nat'l Park

Present insect infestations throughout Lassen Volcanic National Park, particularly in the Lodgepole type forest, are far below normal. In the Jeffrey Pine type forest the infestation is normal. These infestations are endemic, and the insect responsible for losses is primarily the Dendroctonus beetle. In a few cases the Jeffrey Pine beetle, Dendroctonus jeffreyi, (Hopk) was aided by the large western pine engraver, Ips emarginatus (lec). The beetle responsible for the Lodgepole Pine infestations is the Mountain Pine beetle, Dendroctonus monticolae, (Hopk).

Because of the low beetle infestation control measures were carried on only in places of use and esthetic value. This included the campgrounds and a ten chain strip on both sides of the Lassen Peak Loop Highway where pine forests occurred.

No permanent camps were set up because of the small amount of work to be done in each place. The cost of the project was therefore quite high per number of trees treated because of the time lost in moving from one area to another. A Ford 1½ ton truck was available to carry all necessary equipment and men.

I Butte Lake Area.

Insect control work began at Butte Lake the last week in October. A reconnaissance was made in this area the first week in October at which time three infested Jeffrey Pines, three Ponderosa Pines and five Lodgepole Pines were found in and adjacent to the campground. Another reconnaissance was made the last week in October. No further infestations were noticed. This survey covered the campground, a ten chain strip along the northern shore of the lake, a similar width of ground north of the Emigrant Trail as far as the Cinder Cone, and also the area south of the Emigrant Trail as far as the forest extends into the lava beds east of the Cinder Cone.

The cover type is predominantly Jeffrey Pine with an occassional Ponderosa Pine. The area covered is approximately 280 acres. No control work was done previously in this area. Two isolated groups of dead Jeffrey Pine trees near the campground gave evidence that a light infestation has been present in this area for several years. The infested trees in the campground undoubtedly are a result of the flight from these two groups of "ghost" trees.

The insect responsible for the losses in the Jeffrey Pine is the Jeffrey Pine Beetle, Dendroctonus jeffreyi (Hopk); in the Ponderosa Pine the beetle responsible is the Western Pine Beetle, Dendroctonus brevicomis (lec); and the beetle responsible for the death of the Lodgepole Pine is the Mountain Pine Beetle, Dendroctonus monticolae(Hopk). The Turpentine beetle was found in the base of two of the infested Jeffrey Pines.

Control measures consisted of falling the trees, peeling them of their bark and burning the bark. One large tree in the campground and within a chain of the ranger station was bucked into logs of a size that could be easily rolled in order that all the bark could be peeled and burned in a pit. This was done so as not to disfigure the campground with a whole tree completely charred. The other trees, which were adjacent to the campground but inconspicuous to the public were peeled in the usual manner and the whole tree burned in order to kill the brood in the unpeeled portion near the ground.

The Lodgepole trees were found in the corral several chains from the ranger station. The beetle in this tree were killed by using oil. A diesel oil was used which proved to be very effective. One application killed the larvae except in the stump log where the bark was very thick. Two applications of oil, however, were sufficient to kill the larvae in these stump logs.

II. Manzanita Lake.

In the campground proper but two infested trees were found. They were infested with the Jeffrey Pine Beetle, Dendroctonus jeffreyi (Hopk). Two windfalls in the campground were also treated.

West of the Manzanita Lake Checking Station, at the point where the highway turns north towards Burney, six Jeffrey Pine trees were found and treated. Two of this group, when felled, were found to have been killed by the large western pine engraver, Ips emarginatus (Lec), and the Flat Headed Borer, Melanophila gentilis (Lec). The rest of the group were infested by the Jeffrey Pine Beetle and aided by the large western pine engraver.

The forest type in this area is predominantly Jeffrey Pine. The infestation is endemic. The area covered is approximately 320 acres.

It is very unlikely that there will be many future kills in the Manzanita Lake campground, if so, maintenance work the coming spring should practically annihilate the beetle.

III. Lassen Peak Loop Highway

The cover type extending from Manzanita Lake to Hat Lake is, primarily, Jeffrey Pine with an occassional Ponderosa Pine and Sugar Pine. A ten chain strip on both sides of the road was covered for insect trees.

An early cruise the first week of October revealed 8 trees. They were found near Lost Creek on the western edge of the Devastated area. By color, many more trees showed up and a re-cruise the middle of November revealed a total of 19 infested trees.

This infestation is endemic. The area covered is approximately 680 acres. The insect responsible for the losses is Dendroctonus Jeffreyi (Hopk) in the Jeffrey Pine, Dendroctonus brevicomis (Lec) in the Ponderosa Pine, and Dendroctonus monticolae (Hopk) in the Sugar Pine.

IV. Juniper and Horseshoe (Grassy) Lakes

In the October reconnaissance 12 infested Lodgepole pines were found at Juniper Lake and 7 at Grassy (Horseshoe) Lake. When the control crew began work the middle of November a re-cruise of the area revealed no further infestation. In the report of October 28 it was explained that the present infestation was due to the improper oil treatment last year.

The oil treatment was used again this year in destroying the broods in infested trees. One application proved effective in killing the larvae except in one or two stump logs with thick bark. A second application of oil on the stump long killed the larvae.

The infestation in the Lodgepole type forest is far below normal. The past cold winter was very effective in decimating the insect population. With favorable weather conditions in future years it is hoped that the infestation will be kept at a minimum.

V. Warner Valley

The infestation in this area is very light. There is a distinct

Lodgepole and Jeffrey Pine type here. In the Lodgepole area there are evidences of past infestations where large groups of trees were killed. A reconnaissance of the Lodgepole type forest here revealed no large infestation. Only one infested Lodgepole tree was found.

Below the ranger station about 100 yards three infested Jeffrey Pines were located. They were heavily infected with the Jeffrey Pine Beetle. Two smaller Jeffrey Pine trees were found along the road and near the park boundary.

Reconnaissances were made in other areas such as Badger Flat, Snag Lake, Summit Lake and Kings Creek Meadows. In Badger Flat and Snag Lake areas where the forest type is 100% Lodgepole, the infestation is very light. No new attacks were found in Badger Flat but at Snag Lake a few new attacks were located. This infestation at Snag Lake is far below normal and it was considered inadvisable to carry on control work there. Effective control work was done at Summit Lake last fall and with the aid of the past cold winter the beetle has been controlled here. No infestation was found at Kings Creek campground.

Park Headquarters Area

Only three trees were found on the 80 acres comprising the park headquarters grounds. There is little hope of eradicating the beetle here unless the owners of private property adjacent to the park headquarters carry on some insect control work. The removal of the trees infested, however, greatly improves the appearance of the area, but it is hoped that the private owners in this vicinity will do something about the situation in the future.

The three trees noted above were Ponderosa Pines and the insect responsible for the infestation was the Dendroctonus brevicomis, (Lec). Control work was carried on by C.C.C. boys, at Park Headquarters.

Respectfully submitted,

William B. Augustine
Foreman, Insect Control

COST TABLE-appended
WBA/Ah

C O S T T A B L E

AREA	NO. TREES TREATED					VOLUME					COSTS		
	JP	PP	LP	SP	Total	JP	PP	LP	SP	Total	Per Tree	Per M.B.M	TOTAL
Butte Lake	3	3	5	-	11	810	312	136	-	1258	$13.90	$12.16	$153.00
Manzanita Lake & Loop Highway	25	2	-	1	28	2500	757	-	408	3665	$16.02	$11.48	$420.74
Juniper & Horseshoe Lakes	-	-	19	-	19	-	-	563	-	563	$11.46	$38.64	$217.60
Warner Valley	5	-	1	-	6	1133	-	350	-	1483	$11.44	$ 5.78	$ 68.66
Headquarters*	-	3	-	-	3	-	1634	-	-	(1634)	*	*	*
TOTALS	33	8	25	1	67	4443	2703	1069	408	7603			$860.00**
Total less Hdqtrs	33	5	25	1	64	4443	1634	1069	408	6969			

Average Cost per Tree..... $13.43
Average cost per M. B. M.... $12.37

* No cost, labor done by C.C.C. crews
** Above costs include Insect Control Foreman's salary ($102.00)

Field Notes

Butte Lake

Number	Species	Dbh.	Ft. Logs	Attack	Insect Stages
1	JP	30	5	Dj. Dv.	Adults, eggs
2	JP	44	6	Dj. Dv.	Larvae
3	PP	48	5	Db.	Adults
4	"	14	1	Db.	Adults, larvae
5	"	12	1	Db.	" "
6	JP	36	5	Dj.	" "
7	JP	16	3	Dm.	Larvae
8	"	12	1	"	"
9	"	34	4	"	"
10	"	32	3	"	"
11	"	28	3	"	"

Manzanita Lake and Loop Highway

1	JP	30	4	Dj.	Larvae
2	"	36	5	"	"
3	"	30	5	"	"
4	"	26	5	"	"
5	"	34	3	"	"
6	"	26	4	?	Fade-no bugs
7	"	40	6	?	Fade-Flathends
8	"	34	5	Green Tree(rainfall)	
9	"	26	4	" "	"

Loop Highway

1	JP	34	4	Dj.	Larvae
2	"	36	5	"	"
3	"	20	3	"	"
4	"	22	3	"	"
5	"	16	3	"	New adults
6	"	60	6	"	larvae
7	"	30	5	"	"
8	"	24	3	"	"
9	"	14	1	"	"
10	"	14	1	"	"
11	"	48	6	"	
12	"	38	5	"	Larvae, new adults
13	"	12	1	"	Larvae
14	PP	32	6	Db.	"
15	JP	28	4	Dj.	Eggs, larvae, new adults
16	"	26	4	"	Larvae
17	JP	50	7	Dm.	Eggs, larvae
18	PP	54	7	Db.	Larvae, new adults
19	JP	14	1	Dj.	Larvae

Field Notes (con't)

Juniper Lake

Number	Species	Dbh.	Ht. Logs	Attack	Insect Stages
1	LP	26	4	Dm.	Larvae
2	"	20	4	"	"
3	"	22	3	"	"
4	"	18	3	"	"
5	"	18	3	"	"
6	"	12	1	"	"
7	"	26	4	"	"
8	"	24	4	"	"
9	"	22	2	"	"
10	"	16	3	"	"
11	"	18	3	"	"

Grassy Lake

1	LP	26	4	"	"
2	"	12	2	"	"
3	"	24	4	"	"
4	"	16	3	"	"
5	"	14	2	"	"
6	"	16	3	"	"
7	"	24	4	"	"
8	"	12	3	"	"

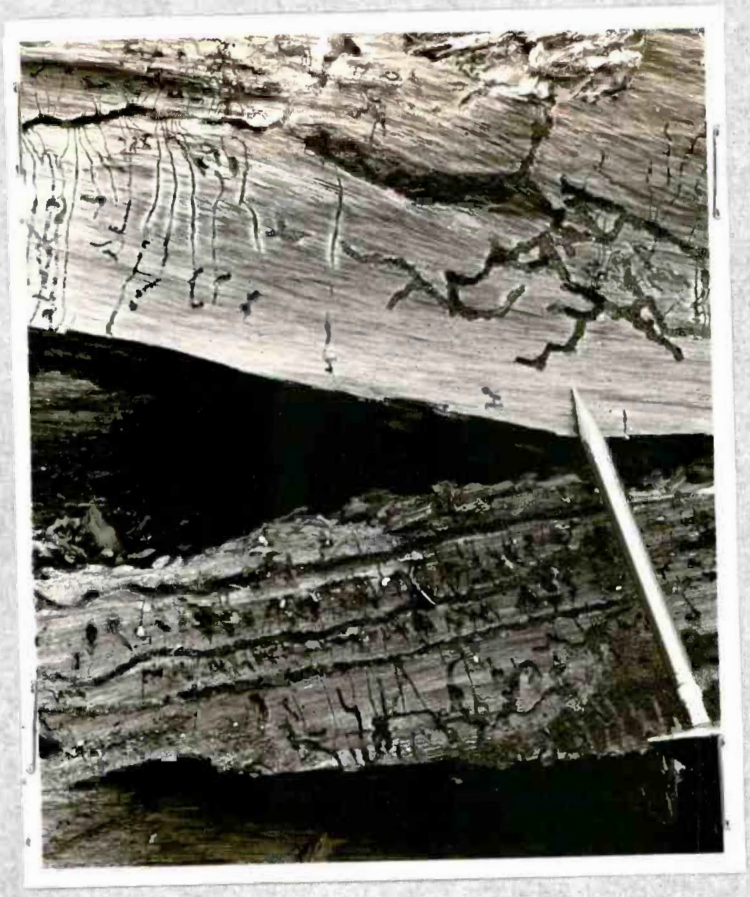
Warner Valley

1	JP	44	7	Dj, Dv.	Larvae,	pupae
2	"	50	7	Dj.	"	"
3	"	36	6	"	"	"
4	"	18	2	"	"	"
5	"	16	1	"	"	"
6	LP	20	4	Dm.	"	"

Headquarters

1	PP	60	9	Db. Dv.	"	"
2	"	48	8	Db.	"	"
3	"	34	6	"	"	"

Photograph taken of large Ponderosa Pine killed by the Western Pine Beetle, Dendroctonus brevicomis, Lec and treated during the 1933 insect control operations. Note the blaze on the tree indicating to the treating crew that the tree is to be felled and peeled and later burned, and the characteristic winding galleries of this insect.



Picture of characteristic egg galleries and larvae of Dentroctonus monticolae (Hopk) on Sugar Pine. The larvae are the small white specks on the bark.

Peeling bark from infested sugar pine tree in park